



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/620,053	07/20/2000	Yang Cao	Cao-5	3581
7590 11/01/2005			EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.			MOORE, IAN N	
P.O. BOX 8910			ART UNIT	
RESTON, VA 20195			PAPER NUMBER	
			2661	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/620,053

Applicant(s)

CAO, YANG

Examiner

Ian N. Moore

Art Unit

2661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-23, 25-31, 33-38 and 40-42 is/are rejected.
- 7) ☒ Claim(s) 11, 24, 32 and 39 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Applicant's argument on the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

#### *Specification*

2. The abstract of the disclosure is objected to because it contain the phrase, "**invention**" in line 5, which can be implied. Applicant is reminded of the proper language and format for an abstract of the disclosure. Correction is required. See MPEP § 608.01(b).

It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

#### *Claim Objections*

3. **Claim 23** is objected to because of the following informalities: Claim 23 recites, "**an** IP switch fabric or **a** circuit switch fabric" in line 4. Note that in claim 1 already discloses one circuit switch and a packet switch in lines 2-3. Therefore, it is suggested to add wherein clause or equivalent thereof, in order to define the packet switch is an IP switch, and change "a circuit switch fabric" to "the circuit switch fabric" in claim 23.

Appropriate correction is required.

#### *Double Patenting*

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686

Art Unit: 2661

F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1,4, 12,15,28 and 33 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 16, 28, and 35 of U.S. Patent No. 6,865,179 in view of Suzuki (US006330239B1).

Claims 1,4,12,15,28 and 33 of the instant application is the same scope of the claim 1, 16, 28, and 35 of the Patent (US 6,865,179 to Cao) by replacing ATM traffic with IP traffic; however, routing IP traffic over ATM traffic or replacing ATM traffic with IP traffic is well known in the art. In particular, Suzuki discloses such limitation in FIG. 9-11; see col. 8, line 6 to col. 9, line 43. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide, as taught by Suzuki in the art in the system of Cao, so that it would provide an exchange apparatus that securely converts an address with a small amount of information and assures and expands services; see Suzuki col. 2, line 64-67.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang'412 (US005920412A) in view of Chang'757 (US006657757B1).

**Regarding Claims 1 and 12**, Chang'412 discloses a hybrid telecommunication switch comprising at least one circuit switch fabric (see FIG. 4, optical network routing apparatus, ONRA 14d) comprising:

- at least one circuit switch fabric (see FIG. 4, STM ADM 28; see col. 9, lines 16-22);
- at least one packet switch fabric (see FIG. 4, ATM ADM 32; see col. 9, lines 15-25); and
- a controller (see FIG. 4, Type check 24; see col. 11, line 46-50; see col. 12, line 15-22)

route traffic (see col. 11, line 1-16; signals/traffic) to the circuit switch fabric or packet switch fabric depending on an ATM service category/type of traffic (see FIG. 5, step 50,52 and 56; note that ATM service category/type are defined as real time or non-real time signals; and thus, when routing according to ATM service category one must route by determining whether the service signals are real-time or non-real time signals. Thus, routing to either STM/TDM or ATM ADMs according to type of service as STM real time signals/traffic or ATM real/non-real time signals/traffic; see col. 12, line 9-46; see col. 15, line 25-52).

Chang'412 does not explicitly disclose IP traffic. However, it is well known in the art that IP traffic can be transported over STM/SONET/SDH, and IP traffic can also be transported over ATM. Chang'757 teaches IP traffic/router 112 is coupled to ATM/SONET system 131 (see FIG. 1, see col. 9, line 1-5). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide routing IP traffic over ATM/SONET system, as taught by Chang'757 in the system of Chang'412, so that it would combine the advantages of circuit-switching and packet-switching IP technologies; and it will also provide low latency, high

Art Unit: 2661

throughput, and cost-effective bandwidth-on demand; see Chang'757 col. 9, line 1920-22; see col. 8, line 35-39.

8. Claims 2, 3, 7, 13, 14, 28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang'412 in view of Chang'757, and further in view of Dail (US005570355A).

**Regarding Claims 2, 3, 7, 13, 14, 18, 28 and 33,** Chang'412 discloses a hybrid telecommunication switch comprising at least one circuit switch fabric (see FIG. 4, optical network routing apparatus, ONRA 14d) comprising:

at least one circuit switch fabric (see FIG. 4, STM ADM 28; see col. 9, lines 16-22);

at least one packet switch fabric (see FIG. 4, ATM ADM 32; see col. 9, lines 15-25); and

a controller (see FIG. 4, Type check 24; see col. 11, line 46-50; see col. 12, line 15-22)

route traffic (see col. 11, line 1-16; signals/traffic) to the circuit switch fabric or packet switch fabric depending on an ATM service category/type of traffic (see FIG. 5, step 50, 52 and 56; note that ATM service category/type are defined as real time or non-real time signals; and thus, when routing according to ATM service category one must route by determining whether the service signals are real-time or non-real time signals. Thus, routing to either STM/TDM or ATM ADMs according to type of service as STM real time signals/traffic or ATM real/non-real time signals/traffic; see col. 12, line 9-46; see col. 15, line 25-52);

Chang'412 does not explicitly disclose IP traffic. However, it is well known in the art that IP traffic can be transported over STM/SONET/SDH, and IP traffic can also be transported over ATM. Chang'757 teaches IP traffic/router 112 is coupled to ATM/SONET system 131 (see FIG. 1, see col. 9, line 1-5). Therefore, it would have been obvious to one having ordinary skill in the

Art Unit: 2661

art at the time the invention was made to provide routing IP traffic over ATM/SONET system, as taught by Chang'757 in the system of Chang'412, so that it would combine the advantages of circuit-switching and packet-switching IP technologies; and it will also provide low latency, high throughput, and cost-effective bandwidth-on demand; see Chang'757 col. 9, line 1920-22; see col. 8, line 35-39.

Neither Chang'412 nor Chang'757 explicitly disclose allocate switch fabric to traffic falling within an ATM service category; and allocate available switch resources, as indicated by a resource table, to received traffic request. However, Dail discloses allocate switch fabric to traffic falling within an ATM service category, or provisioning a portion of the switch resources for circuit switch traffic (see FIG. 11, bandwidth controller 435 allocates STM or ATM/CBR calls in 1112; see col. 16, line 35-57; also see FIG. 7); and

allocate available switch resources, as indicated by a resource table, to received traffic request, or allocate the remaining portion of the switch resources to non-STM traffic as a controller route traffic to the switch fabric(see FIG. 11, allocates ATM/VBR calls in 1101 and 1102; see col. 16, line 35-57; also see FIG. 13-14; see col. 17, line 25 to col. 18, line 34; note that buffer maintains table/registers for allocation; also see FIG. 7, dynamic mark between STM and ATM bandwidth).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide allocation circuit switching, as taught by Dail, in the combined system of Chang'412 and Chang'757, so that it would adapt to the changing demands of a mix of STM and ATM applications, and efficiently allocates bandwidth; see Dail col. 2, line 53-66.

9. Claim 4-6 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang'412 in view of Chang'757 and Dail as applied to claim 2 above, and further in view of Brueckheimer (US006574224B1).

**Regarding Claims 4 and 15**, the combined system of Chang'412, Chang'757 and Dail discloses routing IP traffic associated with a ATM service category to the circuit switch fabric (see Chang'412 FIG. 5, step 50,52 and 56; routing to STM ADM according to STM real time signals/traffic (i.e. ATM service category); see col. 12, line 9-46; see col. 15, line 25-52).

Neither Chang'412 nor Chang'757 explicitly disclose constant bit rate (CBR). However, CBR is well known in the art for classifying real time application such as voice and video. In particular, Brueckheimer discloses routing traffic associated with a ATM service category to the circuit switch fabric (see FIG. 1, AAL 1 traffic/data in Voice Switch 25; FIG. 14, voice AAL 1 in AAL/IP interworking module; or FIG. 7, voice AAL 1 in VoIP AAL interworking module; see col. 6, lines 47-65; note that traffic/data is related/associated with AAL 1 (i.e. CBR category) and routed toward the voice switch/AAL/IP interworking module).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide switching AAL 1 to voice switch, as taught by Brueckheimer, in the combined system of Chang'412 and Chang'757, so that it would provide a functional partitioning of devices that is an optimal separation of concerns for traffic management, quality of service (QoS) controls, buffer depth scaling and low latency; see Brueckheimer col. 3, line 10-33.



**Regarding Claims 5 and 16**, the combined system of Chang'412 and Chang'757 discloses routing IP traffic associated with a real time ATM service category to the circuit switch fabric (see Chang'412 FIG. 5, step 50,52 and 56; routing to STM ADM according to STM real time signals/traffic (i.e. ATM service category); see col. 12, line 9-46; see col. 15, line 25-52).

Neither Chang'412 nor Chang'757 explicitly disclose variable bit rate (VBR). However, rt-VBR is well known in the art for classifying real time application. In particular, Brueckheimer discloses routing traffic associated with a rt-VBR ATM service category to the circuit switch fabric (see FIG. 1, AAL 2 traffic/data in Voice Switch 25; FIG. 14, voice AAL 2 in AAL/IP interworking module; or FIG. 7, voice AAL 2 in VoIP AAL interworking module; see col. 6, lines 47-65; note that traffic/data is related/associated with AAL 2 (i.e. real time VBR category) and routed toward the voice switch/AAL/IP interworking module).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide switching AAL 2 to voice switch, as taught by Brueckheimer, in the combined system of Chang'412 and Chang'757, for the as motivation as stated above in claim 4.

**Regarding Claim 6 and 17**, the combined system of Chang'412 and Chang'757 discloses routing IP traffic associated with a non-real time ATM service category to the packet switch fabric (see Chang'412 FIG. 5, step 50,52 and 56; routing to ATM ADM according to ATM non-real time signals/traffic (i.e. ATM service category); see col. 12, line 9-46; see col. 15, line 25-52).

Neither Chang'412 nor Chang'757 explicitly disclose traffic not associated with CBR or rt-VBR ATM. However, rt-VBR is well known in the art for classifying real time application. In

Art Unit: 2661

particular, Brueckheimer discloses routing traffic associated with a rt-VBR ATM service category to the packet switch fabric (see FIG. 1, AAL 5 traffic/data in Data/Packet Switch 26; FIG. 14, AAL 5 in AAL/IP interworking module; or FIG. 7, AAL 5 in VoIP AAL interworking module; see col. 6, lines 47-65; note that traffic/data is related/associated with AAL 5 (i.e. neither CBR nor real time VBR category) and routed toward the data switch/AAL/IP interworking module).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide switching AAL 5 to packet switch, as taught by Brueckheimer, in the combined system of Chang'412 and Chang'757, for the as motivation as stated above in claim 4.

10. Claims 8, 19, 29 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang'412 in view of Chang'757 and Dail, as applied to claims 3, 13, 28, and 33 above, and further in view of Caldara (U.S. 5,982,771).

**Regarding claims 8, 19, 29 and 34**, the combined system of Chang'412, Chang'757 and Dail discloses the controller maintain a circuit switch resource table as described above in claims 3, 13, 28, and 33.

Neither Chang'412, Chang'757 nor Dail explicitly discloses egress resource table. However, the above-mentioned claimed limitations are taught by Caldara'771. In particular, Caldara'771 teaches controller (see FIG. 1, Bandwidth Arbiter 12) maintains switch ingress (see FIG. 1, a combined system of memory/RAM/resource table 21,20,23 in Input port 14) and egress

Art Unit: 2661

resource table (see FIG. 1, a combined system of memory/RAM/resource table 48,42,44,46 in Output port 16); see col. 5, lines 10 to col. 6, lines 35).

In view of this, having the combined system of Chang'412, Chang'757 and Dail, then given the teaching of Caldara, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Chang'412, Chang'757 and Dail, by providing output memory resource table in order to control bandwidth allocation, as taught by Caldara. The motivation to combine is to obtain the advantages/benefits taught by Caldara since Caldara states at col. 1, line 50 to col. 4, lines 25 that such modification would efficiently allocates the available bandwidth while assuring that minimum bandwidth and delay requirement of connects are satisfied.

11. Claims 9, 20-22, 25-27, 30, 35-37 and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang'412, Chang'757 and Dail, as applied to claims 3, 13, 28, and 33 above, and further in view of Houji (U.S. 5,832,197).

**Regarding claims 9, 20-22, 25-27, 30, 35-37, and 40-42** the combined system of Chang'412, Chang'757 and Dail discloses all aspects of the claimed invention set forth in the rejection of claims 3, 13, 28, and 33 as described above.

Neither Chang'412, Chang'757 nor Dail explicitly discloses pass an traffic request to a destination node and to establish an traffic path after having determined that all nodes along the proposed path have accepted/allocated an traffic request.

However, the above-mentioned claimed limitations are taught by Houji'197. In particular, Houji'197 teaches pass an traffic request (see FIG. 1, Node N1; also see FIG. 2, step 20, connection request process and pass by Node N1) to a destination node (see FIG. 1, destination

Art Unit: 2661

Node N5; see FIG. 2, to destination node, step 23) and to establish an traffic path (see FIG. 1, a path between N1 and N5; see FIG. 2, establishing the path, step 23-26) after having determined that all nodes (see FIG. 1, Nodes N2-N4, N7) along the proposed path (see FIG. 1, the lowest QoS path between N1 and N5; see FIG. 2, step 21) have accepted an traffic request (see FIG. 2, steps 23-26; accept request); see col. 2, lines 45 to col. 3, lines 27).

In view of this, having the combined system of Chang'412, Chang'757 and Dail, then given the teaching of Houji'197, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Chang'412, Chang'757 and Dail, by providing establishing end-to-end path between source and destination node upon accepting the connection request by the nodes along the path, as taught by Houji'197. The motivation to combine is to obtain the advantages/benefits taught by Houji'197 since a2 states at col. 1, line 30 to col. 2, lines 2315 that such modification would provide an alternate routing in a connection-oriented network in which a plurality of nodes are interconnected by the communication links.

12. Claims 10, 23, 31, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang'412, Chang'757, Dail, Houji, as applied to claims 3, 13, 28, and 33 above, and further in view of Brueckheimer.

**Regarding Claim 10, 23, 31 and 38**, the combined system of Chang'412, Chang'757, Dail and Houji discloses routing IP traffic associated with a real time ATM service category to the circuit switch fabric (see Chang'412 FIG. 5, step 50,52 and 56; routing to STM ADM

Art Unit: 2661

according to STM real time signals/traffic (i.e. ATM service category); see col. 12, line 9-46; see col. 15, line 25-52).

Neither Chang'412, Chang'757, Dail nor Houji explicitly disclose variable bit rate (VBR). However, rt-VBR is well known in the art for classifying real time application. In particular, Brueckheimer discloses routing traffic associated with a rt-VBR ATM service category to the circuit switch fabric (see FIG. 1, AAL 2 traffic/data in Voice Switch 25; FIG. 14, voice AAL 2 in AAL/IP interworking module; or FIG. 7, voice AAL 2 in VoIP AAL interworking module; see col. 6, lines 47-65; note that traffic/data is related/associated with AAL 2 (i.e. real time VBR category) and routed toward the voice switch/AAL/IP interworking module).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide switching AAL 2 to voice switch, as taught by Brueckheimer, in the combined system of Chang'412, Chang'757, Dail and Houji, for the as motivation as stated above in claim 4 and 29.

*Allowable Subject Matter*

13. Claims 11, 24, 32 and 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2661

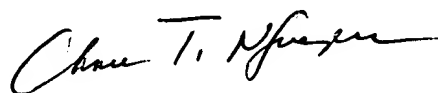
*Conclusion*

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N. Moore whose telephone number is 571-272-3085. The examiner can normally be reached on 9:00 AM- 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

INM  
9NM  
10/27/05



CHAU NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600